

PETIT JEAN RIVER, ARK.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORT ON
PRELIMINARY EXAMINATION OF PETIT JEAN RIVER, ARK.

APRIL 16, 1914.—Referred to the Committee on Rivers and Harbors and ordered to be
printed, with illustration.

WAR DEPARTMENT,
Washington, April 15, 1914.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith a letter from the Chief
Engineers, United States Army, dated 14th instant, together with
copy of report from Maj. E. M. Markham, Corps of Engineers, dated
February 12, 1913, with map, on preliminary examination of Petit
Jean River, Ark., made by him in compliance with the provisions of
the river and harbor act approved July 25, 1912.

Very respectfully,

LINDLEY M. GARRISON,
Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, April 14, 1914.

From: The Chief of Engineers, United States Army.

To: The Secretary of War.

Subject: Preliminary examination of Petit Jean River, Ark.

There is submitted herewith, for transmission to Congress, report
dated February 12, 1913, with map, by Maj. E. M. Markham, Corps
Engineers, on preliminary examination of Petit Jean River, Ark.,
made for by the river and harbor act approved July 25, 1912.

2. Petit Jean River is a tributary on the westerly side of the Arkansas River, which it enters 68 miles above Little Rock. Between 1880 and 1892, \$9,500 was expended on a project which provided for clearing the banks of overhanging timber, removing snags, drift, etc. The river is very narrow and shallow, and it is reported that the low water discharge will probably not exceed 25 cubic feet per second. It is stated that there is now no navigation of any kind on the river. Persons interested in the lumber industry claim that if the natural obstructions were removed from the stream they would be enabled to bring to the mills a vast amount of logs, and that they would ship by river the lumber made therefrom. The district officer is of opinion that the river is worthy of improvement to the extent of being cleared of all snags, drift, timber, loose rocks on the shoals, and of being maintained in such condition for about two years thereafter. Further expenditures to be dependent upon the commerce developed. The division engineer considers the Petit Jean River unworthy of improvement by the General Government at the present time.

3. This report has been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, dated March 24, 1914. The board does not believe that sufficient benefits to the general public would result from the improvement of this river to justify the United States in undertaking the work. It therefore concurs with the division engineer in the opinion that it is not advisable at this time for the United States to undertake the improvement of this river.

4. After due consideration of the above-mentioned reports, I concur with the views of the division engineer and the Board of Engineers for Rivers and Harbors, and therefore report that the improvement by the United States of Petit Jean River, Ark., is not deemed advisable at the present time.

DAN C. KINGMAN,
Chief of Engineers, United States Army.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
March 24, 1914.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. The Petit Jean River is a tributary of the Arkansas River, which it enters 68 miles above Little Rock. During the period 1880 to 1892, \$9,500 were expended on a project which provided for the clearing of the banks of overhanging timber, removing snags, drift, etc., and it is stated that the improvement resulted in a channel 100 feet wide clear of snags at stages giving 2 feet of water on the shoals. Four fixed bridges below Danville, which is 40 miles above the mouth, are obstructive to boat and raft navigation. At dead low water the river has a width of about 6 feet on a few shoals, and a width of about 25 feet at a stage of 8 to 10 inches above dead low water. The discharge is reported as low as 25 cubic feet per second. The average depth on the shoals during the navigable season, between December and July, is probably about 18 inches. The bed of the river on the worst shoals is composed of rock or slate.

2. The district officer states that so far as known there has been no boat on the Petit Jean for many years. The principal item of prospective commerce is timber, which is being manufactured by several mills in the valley, only two of which are located directly on the river. The district officer states that there is little doubt that the river would be used for rafting were its natural depth made available and that it is possible that some steamboat business up to Rocky Crossing, 25 miles, would develop, although such navigation would be limited to periods of medium or high stages in the Arkansas River. He is of opinion that the improvement is worthy to the extent of clearing the river of all snags, drift, timber, and loose rocks, and of being maintained in such condition for about two years, the continuance of the work to depend upon the commerce developed. The division engineer does not believe the locality worthy of improvement.

3. The board was not convinced of the advisability of the improvement, and interested parties were so informed and given an opportunity to present their views. A number of communications have been received, and on March 10, 1914, Hon. Joe T. Robinson, United States Senate, and Hon. H. M. Jacoway, M. C., appeared before the board in advocacy of the improvement and presented a written statement on the subject.

4. A study of the physical conditions of this river indicates the impracticability of securing navigation for more than a few months of each year. While some use might be made of a cleared channel as proposed by the district officer, the facilities afforded would be inadequate for steamboat traffic and not likely to lead to any general navigation. It may be added that the Arkansas River above Little Rock, into which the Petit Jean flows, with very much better natural facilities, is used only to a very limited extent. The board does not believe that sufficient benefits to the general public would result from the improvement of this river to justify the United States in undertaking the work. It therefore concurs with the views of the division engineer and reports that in its opinion it is not advisable at this time to enter upon the improvement of the Petit Jean River, Ark.

5. In compliance with law, the board reports that there are no questions of terminal facilities, water power, or other related subjects which could be coordinated with the suggested improvement in such manner as to render the work advisable in the interests of commerce and navigation.

For the board:

W. M. BLACK,
*Colonel, Corps of Engineers,
Senior Member of the Board.*

PRELIMINARY EXAMINATION OF PETIT JEAN RIVER, ARK.

ENGINEER OFFICE, UNITED STATES ARMY,
Little Rock, Ark., February 12, 1913.

From: Maj. E. M. Markham, Corps of Engineers.

To: The Chief of Engineers, United States Army
(Through the Division Engineer).

Subject: Report on preliminary examination of Petit Jean River, Ark.

1. The following is a report upon a preliminary examination of Petit Jean River, Ark., provided for in the river and harbor act of July 25, 1912.

2. Reports on prior examinations of this stream are given in Annual Reports of the Chief of Engineers for 1871, page 351, and 1885, page 1627. The first was unfavorable to improvement at that time, but the second was favorably acted upon and closely followed by the first appropriation in 1886.

3. The project was: To clear the banks of overhanging timber, remove snags and drift, small portions of Slaty Crossing and Robinson Ridge Shoals, and to remove timber from the low-water channel. The object was: To render the stream navigable at medium and high stages from the mouth to Danville (40 miles), and to prolong the season of navigation between the mouth and Rocky Crossing (25 miles).

4. Former appropriations have been made for this stream as follows:

1886.....	\$3,500
1888.....	2,500
1892.....	3,500

Total appropriations.....	9,500
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5. Concerning the results accomplished, the Annual Report of the Chief of Engineers for 1895, page 2016, states that "At the close of the fiscal year of 1893 there was a channel 30 feet wide, clear of snags at such stage as to give 2 feet of water on the shoals. The bridge at Rocky Crossing is an absolute bar to steamboat navigation from Danville to the mouth. * * * Snags and overhanging timber are reported as again obstructing navigation below the Rocky Crossing Bridge and that the same, with drift piles in addition, obstruct rafting from points above." The above extract is from the last annual report made on this river.

6. The Petit Jean River rises in the southern portion of Sebastian County, Ark., about 115 miles west of Little Rock, and flows in an easterly direction through Scott, Logan, and Yell Counties to its junction with the Arkansas River, 68 miles above Little Rock. Its total length is approximately 135 miles and its watershed 912 square miles, of which 651 are above and 261 below Danville. The principal tributary is Dutch Creek, a stream about 45 miles long, which empties into the Petit Jean from the south 1 mile above Danville. At this point the river ceases to be a purely mountain stream and assumes the nature of a crooked bayou, with little fall except on the shoals and so much obstructed by overhanging timber, snags, and drift piles that it is doubtful if the stream is available even for rafting at any stage. At Danville, which has always been considered the head of boat navigation, the river is crossed by a steel highway bridge a short distance above the old boat landing and by a railroad bridge one-half mile below the highway bridge. At Rocky Crossing (mile 25) there is a low plate girder railroad bridge and 50 feet farther downstream is a steel highway bridge. At mile 32 and at mile 15 are temporary wooden wagon bridges designed for use by the loggers during low-water seasons only. The four bridges below Danville are obstructions to boat navigation during boating stages of the river and to rafting at medium low stages.

7. As the consensus of opinion among those interested in the improvement of the Petit Jean was that Danville should be considered as the upper limit thereof, no examination was made above

that point. Below Danville the physical characteristics of the river are as follows:

Valley.—The average width of the overflowed lands varies from one-half mile at Danville to over 3 miles opposite Ola. This width is reduced to less than three-fourths mile at Slaty Crossing (mile 15) and to about one-half mile in the vicinity of mile 10, below which its average is probably $1\frac{1}{2}$ miles. From the best maps obtainable it is estimated that the overflowed land below Danville amounts to about 49 square miles, or 32,360 acres, of which not over 10 per cent is in cultivation. The acreage of the first uplands lying on both sides of these overflowed lands, and which are a part of the Petit Jean Valley, geographically considered, probably amount to twice that of the overflowed bottom lands. Beyond these first uplands is a large side hill area rising to the main north and south ranges or divides.

Width inside of banks.—At dead-low water the Petit Jean has a width of about 6 feet on a few shoals. At a stage 8 to 10 inches above "dead low" the water width on such shoals is about 25 feet. The average width at low water in the pools is about 50 feet and at a 5-foot stage about 100 feet. The distance from top of bank to top of bank is approximately 175 feet.

Banks.—The banks where overflowed vary from 19 feet at Danville to 12 and 14 feet above low water at the mouth, and are of firm clay with no indication of caving. At Danville the right bank is a slate rock, which again crops out in the lower portion of the right bank at Rocky Crossing. Slaty Crossing shows a slate bank on the left side of the stream nearly to the top of the bank.

Oscillation.—The difference between high and low water at Danville, as determined by measurements from the water surface to the high-water marks on the bridge, is about 27 feet. At Rocky Crossing the range is approximately 25.5 feet, as determined from marks on the highway bridge at that point. The extreme oscillation at the mouth, which is affected very greatly by the stages of the Arkansas River, is about 30 feet.

Depth of overflow on banks.—The Petit Jean rarely overflows its banks from its own headwaters, but from Danville about half way to the mouth they are frequently topped by a combination of the Petit Jean and Arkansas River waters and in the lower reaches of the stream by Arkansas River backwater also. The banks are said to overflow from 4 to 15 feet, except at a few points such as the east side of Wilborns Ford and the west side of Slaty Ford, where the hills approach practically to the stream.

Depths.—The low-water stages on this river generally continue from July to December, or for a more extended period if the winter is severe. The depth on the ruling shoals during extreme low stages is not over 6 inches, and in pools from 18 inches to 10 feet. The average depth on the shoals between December 1 and July 1 is probably about 18 inches. High stages in the Petit Jean caused by backwater from the Arkansas may be expected during short periods from January to June, principally in May and June, but it is seldom that a stage of the Arkansas sufficient to give navigation in the Petit Jean to Rocky Crossing lasts over 10 consecutive days, although in 1908 such stage existed from May 24 to June 20, or about 26 days.

Bed of river.—Rock or slate bottom was found on the worst shoals. The bed elsewhere is composed of clay.

Bars.—The bars are very small and few in number. Such as exist are composed of gravel.

Slope.—The fall over the shoals during low water varies from a few inches to between 4 and 5 feet, and the slope in the pools appears to be very slight. Roughly, there is a total fall of about 25 feet over the shoals from Danville to the mouth. According to Chicago Rock Island & Pacific levels the elevation of low water at Danville is 303 and at Rocky Crossing 291. The elevation of low water in the Arkansas River at the mouth of the Petit Jean as determined by the Arkansas River survey is approximately 270, making a total low-water fall of 33 feet from Danville and of 21 feet from Rocky Crossing, respectively, to the mouth of the Petit Jean. This gives an average slope of 0.8 foot per mile for the 15 miles above, and 25 miles below Rocky Crossing. Although the extreme oscillation at the mouth is but 30 feet, it is claimed that Arkansas River floods produce backwater on the Petit Jean as high up as Danville (mile 40), and a report on this river printed on pages 350–354 of the Annual Report of the Chief of Engineers for 1871 states that “It will require a rise of 15 feet in the Arkansas River to give 2 feet depth at Rocky Crossing and a rise of 35 feet to have 2 feet of water at Danville.” Mr. O. L. Clements, of Danville, states that in May, 1892, the high stages in the Arkansas River produced backwater as far up Petit Jean as mile 33, but that most frequently Arkansas high waters are felt only to Rocky Crossing (mile 25), and that ordinary rises are not effective above a point 3 or 4 miles below Rocky Crossing, or mile 22. It is therefore probable that the low-water slope below Danville is slightly less than 1 foot per mile.

Discharge.—The shallow and narrow flow over the rocky shoals of this stream during extreme low stages indicates that the low-water discharge will probably not exceed 25 cubic feet per second. High-water flow is unknown.

Bridges.—All bridges across this river are with fixed spans. They are listed below:

List of bridges across Petit Jean River, Ark., from Danville (40) to the mouth.

Kind and location.	Length.				Total length opening.	Clearance, Nov. 24–27, 1912.		Clearance at high water.	Water width now under bridges
	Miles above mouth.	Trestle, east approach.	Steel channel spans.	Trestle, west approach.		Floor.	Low steel.		
Highway, Danville.	40	<i>Feet.</i> 75	<i>Feet.</i> 100	<i>Feet.</i> 60	<i>Feet.</i> 235	<i>Feet.</i> 30.4	<i>Feet.</i> 28.5	<i>Feet.</i> 1.0	<i>Feet.</i> 4
Rock Island Railway, Danville....	39.5	50	175	900	1,125	¹ 31.5	28.0	(?)	7
Temporary logging Railway Rocky Crossing.....	32	17	² 30	38	85	5.0	.....	.....	5
Highway Rocky Crossing.....	25	169	75	167	411	¹ 27.0	19.7	None.	8
Temporary logging.....	25	60	(³)	65	355	28.5	27.0	2.0	9
.....	15	.....	² 50	.....	50	1.5	.....	.....	4

¹ Base of rail.

² Log stringers.

³ Three steel spans besides the two wooden approaches, one 65-foot, one 100-foot, and another one 65 feet.

All the steel work of above bridges is supported by masonry piers. The two logging bridges are temporary and do not constitute serious obstructions, as they are light and easily removed. The railroad

and highway bridges at Danville are not obstructions to navigation, as any new landing may as conveniently be established below the railroad bridge as above it. The Rock Island Bridge at Rocky Crossing, however, and the highway bridge at the same point, are obstructions to navigation by boats at boating stages, and to rafting at ordinary stages. The bottom of the plate girder of the railway bridge is several feet below high water.

In addition to the bridges listed above, it is understood that the county court of Yell County has approved the location of and made appropriation for another steel highway bridge across Petit Jean, a few miles above Rocky Crossing, probably about mile 30. As this bridge will be built at about the same relative elevation as the two highway bridges referred to above, it will also constitute an obstruction to boat navigation.

The bridges at Danville and Rocky Crossing are on the main county highways from Danville and Ola to Dardanelle, on the Arkansas River. Danville and Dardanelle are both county seats of Yell County.

Obstructions.—During low stages, the lack of water on the shoals is an absolute bar to any kind of through navigation. During what might be termed navigable stages, when there is at least 3 feet of water over the shoals, the many snags, sunken logs, drifts, and overhanging timber prevent the use of the natural depths that would otherwise be available. This condition has prevented the use of the stream for logging or other operations for many years.

The railroad and highway bridges listed above are also obstructions, and practically limit navigation by boat to the river below Rocky Crossing, 25 miles from the mouth. The low bridge at Slaty Crossing (mile 15) would be drowned out or swept away under water conditions sufficient for boat navigation to Rocky Crossing.

Former navigation and commerce.—Practically steamboat navigation on the Petit Jean has always been dependent upon high stages of the Arkansas River, the only exception being when word was received of extremely hard rains in the upper Petit Jean valley. At such times it was possible to go up the Petit Jean and get out with a load on the "run out," but on account of the uncertainties as to the extent of the rise and the amount of freight to be secured on such a hurried trip, such ventures were rare. Generally speaking the Petit Jean freshets are of too short duration for anything but rafting or the running of loose logs.

Previous to the construction of the highway bridge at Rocky Crossing (mile 25) and before the construction of the Choctaw, Oklahoma & Gulf Railway (now the Rock Island) west from Little Rock, boats occasionally proceeded as far as the town of Danville (40), but generally not over two or three trips would be made into the river in a year. Since the building of the highway bridge at Rocky Crossing in the early eighties, a few boats have gone to that point, but it is believed that these trips were made only when the Arkansas was at high or medium high stages. The last full report on this stream was published in the Annual Report of the Chief of Engineers for 1895, page 2016, and states that—

The commerce to be benefited by improving this stream is carried on by small flats floated with the current and by rafting. No complete statistics of it have been obtainable. Steamboats occasionally run up to Rocky Crossing.

The same report states that but one boat (67 tons) reported as having been in the Petit Jean since June 1, 1894, and that this boat made but one trip. The summary of commerce in the report for 1895 shows 1,285 tons for that fiscal year, of which 88 per cent was rafted sawlogs. For the fiscal year 1894 the said report gives 124 tons of freight by boat, the log tonnage not being reported. In previous reports the tonnage is given at 1,500 to 1,600 tons, which probably included rafted logs. In the early reports and before the river was cleared of snags and timber in 1894, it was stated that from 5,000 to 6,000 bales of cotton and much other miscellaneous freight would be shipped out each season by river as soon as the stream was cleared of obstructions, but this increase in tonnage was never realized. It is believed that the construction of the Choctaw, Oklahoma & Gulf Railway west from Little Rock in 1898-9 and 1890, provided an outlet for nearly all the territory tributary to the Petit Jean south of the river, and for the country on both sides at and above Danville. No demand has been made for the removal of either of the bridges at Rocky Crossing which effectually prevent steamboat navigation above that point. Up to 1905 or 1906 a considerable amount of rafting was done on Dutch Creek, the logs being run to Danville on the Petit Jean, to a sawmill located on the railroad at that point. The aggregate amount logged was many million feet. Since that time there has been little rafting of any kind, it being now claimed by the mill men at Rocky Crossing and at Slaty Crossing, as well as by timber men at Danville and at Ola, that the condition of the river has been such as to render it impracticable for rafting at any stage. So far as known there has been no boat on Petit Jean for many years.

Present and prospective navigation and commerce.—There is said to be no navigation of any kind on any part of the Petit Jean at present. The only sawmills in the district affected are located at or in the neighborhood of Ola, at Rocky Crossing and vicinity, and at Slaty Crossing. The two mills at Ola are small. They cut pine and oak and can not profitably use the river for receiving or shipping logs or lumber by reason of their distance from the river, some 3 miles. The Crownover mill at Rocky Crossing saws principally hardwood and has a capacity of 25,000 feet B. M. per day. The George & Boyce mill, 1 mile from Rocky Crossing, cuts hardwood also, and is located on the Rock Island Railway between Ola and Dardanelle, and not on the river, but this mill might profitably use the river for receiving logs from above. The mill at Slaty Crossing has a capacity of 15,000 feet B. M. per day. Being located but 15 miles from the mouth of the river, it might profitably use the same both for receiving logs and shipping out manufactured lumber. Material now produced at this mill has to be hauled by wagon by steep roads over a high ridge, and thence through rolling valley lands and uplands for 4 or 5 miles to the Rock Island Railway. The people interested in these saw mills claim that if the natural obstructions were removed from the stream they would be enabled to bring to the mills a vast amount of logs from localities too far remote from the railroads to be profitably hauled to the latter, and that they would ship the lumber made therefrom by river to the probable extent of 125,000,000 feet B. M. This makes a total prospective tonnage of lumber and logs of 875,000 tons, with a value of approximately \$15,000,000. Assuming this amount

to be cut during the next 15 years, the average forest products tonnage would be 57,660 tons per annum. Judging by the tonnage carried by this stream before the railway entered the valley, combined with the absence of effort to navigate the river in any manner since that time, it is believed that the above assumption is extravagantly great. The mills on the river (there are but two mills directly on the river) would doubtless secure a portion of their logs by rafting from the upstream forests, but the lumber produced would, in all probability, be carried by the railroads, as the uncertainties of navigable stages, the lack of boats and barges of ample capacity to economically handle the business, and the absence of terminal and transfer facilities at any known point to which lumber might be shipped for reloading to its final destination, would more than likely prove an effectual bar to the dispatch of the finished product by water.

The towns in the country that might be affected by any improvement of the Petit Jean, either directly through sending or receiving freight by river, or by reason of possible freight rate reduction, are Belleville, situated 6 miles above the recognized head of navigation, with a population of 335; Danville, at the head of the proposed improvement, with a population of about 1,000; Ola, opposite and south of Rocky Crossing and $3\frac{1}{2}$ miles from the river, with a population of about 750; and Centerville, $3\frac{1}{2}$ miles north of Rocky Crossing, with a population of about 300. These towns are all on the Chicago, Rock Island & Pacific Railway, and distribute to the adjacent country, as far as 30 miles west of Ola, including a portion of Dutch Creek Valley and some territory in the Fourche River Valley.

From such information as is available the estimated tonnage of these towns amounts to approximately 10,682 tons outbound and 10,776 tons inbound, a total of 22,958 tons per annum. This tonnage is stated to include forest products, but is believed to be considerably in error, as it accounts for but one-half ton per acre of cultivated land, whereas the average for farm products alone should hardly be less than three-fourths ton per acre. The information upon which the above estimate of tonnage was based is probably not complete. In addition to the advantages, which those interested anticipate from actual use of the stream when cleared of its existing obstructions, they express the belief that such conditions would effect a general improvement in freight rates, and that the railways would supply cars promptly, which is not now the case. It is stated that shipments of timber and farm products are frequently delayed by reason of cars not being furnished, and that the financial embarrassment and losses thus occasioned are often very serious. Just what measure of relief the improvement of the Petit Jean, to the extent of removing the natural obstructions existing, might give in this regard it is impossible to say.

Country affected.—The area of country that would be directly affected by improvement of the Petit Jean extends from the mouth of the river to about Belleville, a point 6 miles above Danville, the extreme upper limit of any improvement that might be undertaken. This comprises a section of country approximately 35 miles long and 9 miles wide, or 315 square miles. Of this area about 60 square miles, or 38,400 acres, are rich bottom lands, and 255 square miles, or 163,200 acres, are uplands. From 5 to 10 per cent of the bottom lands and about 25 per cent of the uplands are reported as being in

cultivation. This gives a supporting territory of 67 square miles, or 42,800 acres, in cultivation, and 248 square miles, or 158,720 acres, in forest or cut-over land, a total of 315 square miles or 201,600 acres.

The soil of the bottom is a rich black sandy loam, and of the uplands a fair red loam. The principal crops are cotton, corn, oats, wheat, grasses, and fruits. Many apple and peach orchards have been planted during the past few years, and small fruits are now marketed profitably. Cotton will average one-half bale per acre and corn about 40 bushels in the bottoms and 25 in the uplands. The timber is principally pine and oak, of which many million feet have been shipped since the building of the Choctaw, Oklahoma & Gulf Railway. There is still a vast amount of timber untouched, however, much of which is along the Petit Jean, too remote from the railroad to justify its haul to the latter. Mill men place the amount tributary to the river at 125,000,000 feet b. m.

Coal is reported as being mined for local use at Ranger, 5 miles east by north from Danville. Coal is also reported as outcropping in the hills at the mouth of the river, but it is undeveloped and is not mentioned in the State geologist's reports.

8. There is little doubt that the Petit Jean would be used for rafting were its natural depths made available. It is possible that some steamboat business up to Rocky Crossing would also be developed. Steamboat navigation, however, would be limited to periods of medium and high stages in the Arkansas River.

9. All phases of the matter considered, I am of the opinion that the river is worthy of improvement to the extent of being cleared of all snags, drift, timber, loose rocks on the shoals, and of being maintained in such condition for about two years thereafter. Further expenditure should then be dependent upon a consideration of the amount of commerce developed. Thus cleared, the channel depths would be suitable for logging operations below Danville and steamboat operations by boats of not to exceed 3 feet draft below Rocky Crossing from about the first of January to about the last of June, interrupted more or less by short intervals of low water in this period. After the first of June there would exist occasional periods for steamboat navigation of uncertain duration and occurrence.

10. A project for work along these lines can be prepared without survey.

11. There are no public terminals on the river and none are required. The question of water power development or kindred subjects is not involved in this examination.

12. Forwarded herewith are a sketch map of the river and letters from O. L. Clement, of Danville; J. B. Crownover, of Dardanelle; and J. A. Willson and J. I. Morgan, committee, of Ola, setting forth the needs of and benefits to be derived from the improvement.

E. M. MARKHAM.

[First indorsement.]

OFFICE OF DIVISION ENGINEER, WESTERN DIVISION,
St. Louis, Mo., February 21, 1913.

To the CHIEF OF ENGINEERS.

1. Forwarded.

2. The portion of the river it is proposed to improve is generally within from 1 to 4 miles of a railroad. The proposed improvement

will give a depth on bars during low water of but 6 inches, while a depth of 3 feet will only be available during a portion of the high water season (January 1 to June 30), a period when there is little movement of agricultural products. The navigation on the portion of the Arkansas River into which the Petit Jean empties is at present insignificant, and the proposed improvement will neither create traffic on the river nor reduce freight rates on the railroad. The division engineer therefore considers the Petit Jean River unworthy of improvement by the general government at the present time.

C. McD. TOWNSEND,
Colonel, Corps of Engineers.

[For report of the Board of Engineers for Rivers and Harbors, see page 2.]

LETTER OF MR. O. L. CLEMENT.

DANVILLE, ARK., November 26, 1912.

DEAR SIR: At the request of Mr. William Parkin and in completer answer to your favor of September 20 ultimo I have been trying to get data from which I could give you a reasonable close estimate of the freight that might be handled by river transportation should Congress provide for opening Petit Jean for navigation.

I have found it a difficult task. So much of the freight for this point is shipped in "local," i. e., in less than car lots, especially such freights as would most likely come by boats, such as sugar, molasses, nails, wire, etc., none of which, except wire, is ever bought by our merchants in car lots.

The railroad agent here very kindly furnished me with his monthly summaries of carload freights handled during the year November, 1911, to November, 1912. One hundred and forty-eight cars of freight, consisting of fencing wire, flour, feed, coal, etc., were received by this office. Two hundred and seventeen cars, mostly forest products (in fact, all except a few emigrant cars and a few cars of cattle), were shipped out during said year.

Of the carload lots received here 100 of them could have been better and cheaper brought by boat, and of the shipments out probably 200 could have been carried by the boat. An average car, so I am told, is about 30,000 pounds, or 15 tons, so reduced to tonnage of carload shipments alone, receipts would mean, for Danville, 1,500 tons and shipments 3,000 tons. Belleville, only 5 miles west of Danville, could and would have a considerable business by boat with Danville at the head of navigation, amounting, no doubt, to several hundred tons per annum. Ola, Mickle Switch, and Birta would also add their quota. This has to do with present business and does not touch local shipments which are far greater than carload lots, for the reason that our merchants buy most they buy in small lots.

Of these local shipments many tons could and would come by boat on account of cheaper rates. The Petit Jean Valley is so near all in the woods that I find it harder still to get an estimate of the probable business to be developed. I have consulted several parties, and the consensus of opinion is that not more than 5 per cent of the bottom lands are in cultivation, and not over 25 per cent of the uplands adjacent thereto are in cultivation. This estimate is for that part of the valley beginning just west of what is called Cardens Bottoms and extending to south of Belleville, Ark., or 5 miles west of Danville. These lands are very fine, covered with an immense growth of gum, elm, some hickory yet, some white oak left, and a large amount of red oak.

I own near 500 acres of these lands, beginning 2 miles east of Danville, and have had the timber estimated on same. The estimate was 800,000 oak, 300,000 gum, 150,000 hickory. This timber, except the hickory and white oak, can not be sold and delivered to the mills in Danville at a price that will give me enough clear to clear up the tops after the logs are cut. So under present conditions the timber is worth more to me rotting on the land than it is worth for lumber. The same is true for almost the entire bottom north of the river from here to Cardens Bottom, about 25 miles direct. The tonnage to be brought into existence by opening Petit Jean from this source alone will run into the hundreds of thousands. Then, when the timber is removed, the cotton, cottonseed, corn, etc., to be shipped off these lands and the

freight to be brought in to supply the wants of the people who will till the lands will maintain an annual business amounting to many thousands of tons.

On the basis that the bottom averages $2\frac{1}{4}$ miles wide and that 30 miles in length is the area of which the above statements are true, we have 65 square miles. Allowing 1,000,000 to the square mile, this will give 65,000,000 of timber products in the bottoms alone (that can not now go out at a profit) to be handled by boat, and when so handled will yield a profit of \$2.50 to \$5 per thousand. Immense quantities of low-grade timber in the hills will swell this volume 2,000,000, and the extension of the limits within which all grades can be handled by boat will add 10,000,000 more to timber shipments to go out of the territory affected by the river rates, now useless, because transportation charges leave no profit in handling them. A single thousand of timber represents 4 or 5 tons shipping weight, so 75,000 to 100,000 tons are dependent for a market on river navigation.

This is just on the eve of destruction, for many of us can hold it for but a short while longer, and then it will be deadened and left to rot and be burned into the field that must take the place of these forests at an early day. To my mind this will be a great and irreparable waste and ought to be prevented.

I can only conjecture the annual business that would arise if these rich lands are put in cultivation and a freight rate established that will render a free interchange of products with the outside world profitable.

I have written too profusely already and have found it hard to give concrete information. Estimates I have made are the lowest I think the facts justify. In the case of present business, of course, the amount the river would get is estimated on the basis of the railroad maintaining present rates, and I figured that should the railroad reduce its rates the volume of business will be increased sufficiently to still allow boats somewhat near what I have estimated.

Begging your pardon for such a prolix letter and assuring you of my willingness to serve you at any time, I remain,

Yours, truly,

O. L. CLEMENT.

Capt. A. B. PUTNAM,
Corps of Engineers.

LETTER OF MR. J. B. CROWNOVER.

DARDANELLE, ARK., November 27, 1912.

DEAR SIR: We are writing you at the suggestion of Mr. J. A. Wilson, of Ola, Ark., and of Mr. Parkin, your assistant.

The freight rates from Memphis, Tenn., on the Rock Island to Dardanelle, Ark., is, first class, 94 cents per hundred pounds; second class, 79 cents; third class, 64 cents; and fourth class, 49 cents.

From St. Louis, Mo., to Dardanelle, Ark., first class, \$1.15; second class, \$1; third class, 80 cents; and fourth class, 62 cents.

From Little Rock to Dardanelle, Ark., it is, first class, $56\frac{1}{2}$ cents; second class, $49\frac{1}{2}$ cents; third class, $41\frac{1}{2}$ cents; and fourth class, 33 cents.

We have a sawmill at Petit Jean (3 miles north of Ola) with a capacity to cut 25,000 feet per day. We started up recently and have shipped out only 10 or a dozen carloads of lumber. We have on sticks at the yard about one-half million feet of oak and gum lumber, which we can not move for want of cars or water transportation.

We have 2,000 acres of land in the Petit Jean bottoms above the crossing, from which we expect to cut fully 10,000,000 feet of lumber just as quickly as it is possible to do it. If the Petit was cleaned out and kept clean, we could probably ship all this lumber by water.

There is in the bottoms between the Petit Jean crossing and Dardanelle approximately 25,000 acres of land, nearly all of which is well timbered. I feel safe in saying that 125,000,000 feet of lumber can be made therefrom, and all of which could be shipped by water out to the various markets if the Petit Jean was cleaned out and kept clean.

The reasonable value of the approximated 125,000,000 feet of lumber would be at least \$15,000,000.

Let this stream be cleaned out and kept clean, and a large, rich, and productive scope of country will be greatly benefited, as will the health and happiness of a large number of people be preserved.

Yours, truly,

J. B. CROWNOVER.

Capt. A. B. PUTNAM,
Corps of Engineers.

LETTER OF MESSRS. J. A. WILLSON AND J. I. MORGAN.

OLA, ARK., November 29, 1912.

DEAR SIR: We beg to submit the following report in connection with cleaning out Petit Jean River.

Approximately 25,000 acres between Rocky Crossing and Danville, most of it heavily timbered. The land is very productive, and when in cultivation will make 50 bushels of corn to the acre, or a bale of cotton. This estimate can be verified by the small farms that are now in cultivation in same territory.

The lands and timber are practically the same to the mouth of the river. With the timber off, the land will be put in cultivation.

In addition to the Crownover mill at Rocky Crossing, George & Boyce have one 1 mile from Rocky Crossing. They cut 10,000 feet per day, and with this small capacity can not get cars to move their products. You can readily see the impossibility of marketing this vast amount of timber with the present shipping facilities.

If the river was cleaned it could be marketed.

Centerville, 4 miles north of Rocky Crossing, and also tributary to Petit Jean, makes the following report:

Shipped since September, 21 cars cotton seed.

On hand and can not ship, 19 cars cotton seed.

Shipped to date, 300 bales cotton.

At this point the seed houses are all full and they are compelled to pile their seed on the ground or build more houses.

Freight forwarded from Ola by Rock Island:

Month of September, 1912, lumber, 20 cars.

Other goods, 8 cars.

For nine months ending October 1, 302 cars.

Local shipments same time, 234,849 pounds.

FREIGHT RATES.

Dardanelle gets practically the same freight rate from St. Louis and Memphis as we do at Ola, notwithstanding it goes over a short line from Ola to Dardanelle. Dardanelle gets the rate by being on the Arkansas River.

With Petit Jean cleaned out we would get a reduction of freight rates.

NAVIGATION IN PETIT JEAN.

None on account of obstructions. With obstructions removed the same conditions would apply to Petit Jean as does to the Arkansas.

Respectfully submitted.

J. A. WILLSON,
J. I. MORGAN,
Committee.

Capt. A. B. PUTNAM,
Corps of Engineers.

LETTER OF MESSRS. J. I. MORGAN ET AL.

DANVILLE, ARK., April 21, 1913.

GENTLEMEN: We the undersigned citizens, interested in the development of the Petit Jean Valley, Ark., beg leave to submit the following reasons why this river should be opened by the United States Government for navigation at ordinary stages of the river:

The river was formerly used as a navigable stream, but as the lands along the river and its tributaries have been cleared up, logs, brush, etc., have been dumped into the river and its tributaries until the channel of the river is now so badly obstructed that navigation is impossible.

There can be no navigation by boats of any size until these obstructions are removed, and the task is too great for private enterprise, yet present development demands that the work be done.

Our bottom lands are covered with very dense growths of timber; most of it now remaining is gum and low-grade oak, and other timbers which can not be sawed up and shipped over the railroad because of the high freight rate (23 cents per hundredweight on lumber to Oklahoma City). There are millions of feet of this timber that will not pay this freight and the cost of manufacture.

If the obstructions are removed from this stream, the owners of this timber could, during the summer and fall, manufacture this timber into lumber, and when the winter and spring rises come, carry the lumber to a market that would make it yield a profit. Now this timber must be deadened on the lands or sold at a price that will not pay for clearing up the tops. In either case, the expense of clearing is hindering us greatly in our efforts to clear and render productive this fine body of land.

We estimate there are now 50,000 acres of uncleared land in the bottoms along the river from Danville to its mouth capable of yielding 40 bushels or more of corn, 2 tons of hay, or a bale of cotton per acre if cleared. With navigation on the stream these lands will speedily be cleared, for the timber will pay for the work, and the lands cleared up will produce immense crops, which too can find a market, and out of these crops can be developed an immense trade, which can be carried on cheapest and best if we have navigation of Petit Jean during the months of spring and winter.

It is a fact, too, that coal exists over a great deal of the valley, and cheap transportation facilities will justify the opening of mines, out of which will come many tons of coal.

There are many other natural resources needed by the country at large to be found in this valley, such as building stone, clay suitable for brick, etc., which can not and will not be developed until we get cheaper and better shipping facilities.

During the fall and winter months the railroads do not now handle the freight, cotton and cotton seed, offered them promptly enough, and we lose much of the profit from their production on this account. It stands to reason that we can not afford to produce or market more perishable products when our production of as high a class of freight as cotton is not handled without loss to us. What could we do with our corn and hay and cheap timber under such conditions as exist to-day were all our lands in cultivation? To be sure, we ought to convert our corn and hay into cattle and hogs, and we would do it if proper transportation facilities were given us so that we could sell our cheap timbers at a profit and clear our lands; so that the question with us is, and always will be, how to clear our lands, and transportation and freight rates control the answer to that question. Without ample transportation facilities and cheap freight rates we are doomed to laboriously and wastefully clear these lands by slow process, and all of the time the world is losing the rich harvests of cotton, hay, and grain they ought to be making.

For our present purposes there is no great demand for more work on this river than is necessary to remove obstructions, nor do we think navigation necessary for the entire year. With obstructions removed the river will be navigable for a longer season than is the Arkansas. The winter and spring rises will afford plenty water and at the proper time to handle the character of freight first to be shipped out, but in our humble opinion after the rafts and barges will come from the territory adjacent to the river (a valley 60 miles long and 10 miles wide) an immense traffic in coal, corn, cotton, hogs, beef, and other things needed by the country at large, which will be delayed for many years if we are not provided with more prompt, better, and cheaper transportation facilities than we now have.

Respectfully submitted.

J. I. MORGAN.
J. A. WILLSON.
JNO. B. CROWNOVER.
JERRY M. CRAVIUS.
JOSEPH GLEASON.
O. L. CLEMENT.

The BOARD OF ENGINEERS FOR
RIVERS AND HARBORS.

STATEMENT OF HON. H. M. JACOWAY, MEMBER OF CONGRESS, APPROVED BY HON. JOE T. ROBINSON, UNITED STATES SENATOR FROM ARKANSAS.

SIRS: In regard to the improvement of the Petit Jean River, which you have under consideration by your honorable body, beg to advise that by taking a map of Yell County you will notice that the Petit Jean flows almost through the geographical center of the county; to be exact, within $2\frac{1}{2}$ miles of it. Yell County is composed of the Arkansas River Valley on the north, uplands lying between it and the Petit Jean Valley for 24 miles from their confluence; then the Nebo and Magazine mountain range runs westerly north of and parallel with the Petit Jean Valley for 30 miles to Logan County line, where the valley is 4 or 5 miles wide; then the Petit Jean Valley. The drainage from the west side of Nebo and from the south

side of Spring Mountain empties into Petit Jean, and at this point the valley is 15 miles wide north and south, narrowing slowly to the Logan County line nearly 30 miles from Mickle Station, the crossing of the line at the mouth of Chickalah Creek. The Dutch Creek fork of Petit Jean leaves it at Danville, Ark., and, ascending it, we travel for 25 miles up a valley averaging 2 miles wide and walled in with hills so high that Danville is and always will be the only market place for its products. It is as much a part of Danville's territory and as safely so as if it lay in the suburbs of that town. Beginning 4 miles west of Danville a mountain chain, averaging 5 miles from base to base or foot to foot, separates Dutch Creek and Petit Jean Valleys. Then, beginning on the Perry County line, with only one low gap, a mountain line of about the same width (5 miles) separates the Petit Jean from Fourche Valley. This valley crosses the county (about 40 miles) and varies from 3 to 8 miles wide. South of the Fourche Valley lies another mountain range 8 miles wide on an average and separating the South Fourche and Ions Creek Valleys from the Fourche Valley. Of course, you are familiar with this topography, but I recall it so that what is to follow may be more easily understood.

Save that part of the Arkansas River that lies within the trade territory adjacent to Dardanelle, the opening of Petit Jean will benefit all of the county except the east 10 miles of Fourche Valley, South Fourche, and Ions Creek Valleys. Five hundred square miles of valley land now occupied by approximately 20,000 people, and only one-sixth of the land in cultivation; also, 350 square miles of mountain land. Practically all wild land would be benefited to some extent.

At present timber (pine, oak, and other valuable timber) is handled out of a belt 15 miles wide north and south of the railroad. When it must be handled by wagon more than 15 miles, the cost of the haul exceeds the profit, and after deducting costs of manufacture leaves nothing for the timber. Something like 200 or 250 square miles of territory is now without a market for valuable timber, the freight rates running from \$7.20 per thousand to \$13 or \$14 per thousand to Oklahoma City and other western markets and being prohibitive to eastern markets. It is not possible to manufacture and pay these freight rates on any class of timber the lumber from which does not bring \$12 per thousand, and all gum, low-grade red oak, tie timber, etc., come under this head.

There is an immense quantity of these classes of timber in the 800 square miles of territory from which river rates could move it and leave the timber owner something for his timber. Estimating 1,000 per acre, 800 square miles would yield 512,000,000 board feet. The important point in connection with this item is that the railroad freight rate, cost of sawing, etc., paid, nothing or nearly nothing is left the owner.

Timber is at present the most important item, but we raise now on the land from which river rates would draw cotton 18,000 bales annually and 9,000 tons of seed. This item, when the river has carried off our cheap timber and rendered the clearing of the lands possible and profitable, may safely be doubled or multiplied by three. The railroad does not now handle this item satisfactorily when no kick is made on rates. The river in less than 10 years after being opened for navigation will handle at least an amount equal to present production of seed with one-half the bales. Corn and hay can and will be produced on these lands in large quantities for sale and shipment. Coal, stone for building and road purposes will be shipped in quantities only to be guessed, but the supply is great, and it is safe to conjecture that low freight rates will move both in large quantities.

Petit Jean for about 6 months out of the year, would carry a boat of 10 or 12 inch draft if only the logs, driftwood, and timber are removed. There are not and never will be any bars in Petit Jean. There is no sand in the river. There is no question but that the Arkansas River may be navigated for the greater part of the winter and spring months. Boats now pass up the stream occasionally when no one is directly interested in its navigation. Increase the necessity for them by adding the Petit Jean territory to the Arkansas River territory and many more boats will make the trip much oftener.

Much of the freight now brought into this territory on the railroad would come by boat, but a larger and better market for our raw material will make us more prosperous, give us more money to spend, increase the freight shipments into the country, and, in my opinion, give the boats a good trade and not diminish the quantity that comes by rail.

At present we are at the mercy of the railroad, and, in the nature of the country with so many mountain ranges crossing from east to west, we can not expect but one railroad in this valley. We could not get along without this railroad, but for all low grades of freight we need cheaper transportation than it affords, and the Petit Jean offers not only such cheaper transportation facilities, but it will give us valuable aid in competing for higher grade freight rates.

Its navigation will clear our lands, increase our crops, market our timber, reduce our freight bills, increase our purchasing capacity, open our mines, enrich our farmers and manufacturers, and give us an easier life and more time in which to produce loyal boys to defend our Government when needed.

RIVER AT ONE TIME NAVIGABLE.

We also beg to submit that for a number of years it was declared to be a navigable stream, and appropriations were made by Congress, and said stream was prepared for navigation up to what is known as the Rocky Crossing Bridge. Goods from Little Rock and other places were shipped to this place for merchants in that part of Yell County and vicinity, and great quantities of cotton and other products raised in that section of Arkansas were shipped back on the return trip of the boats. It was a success in those days, and the freight rates were much cheaper than they are now, due to the fact that the railroads had to compete with the river rates.

THE MOUTH OF THE PETIT JEAN.

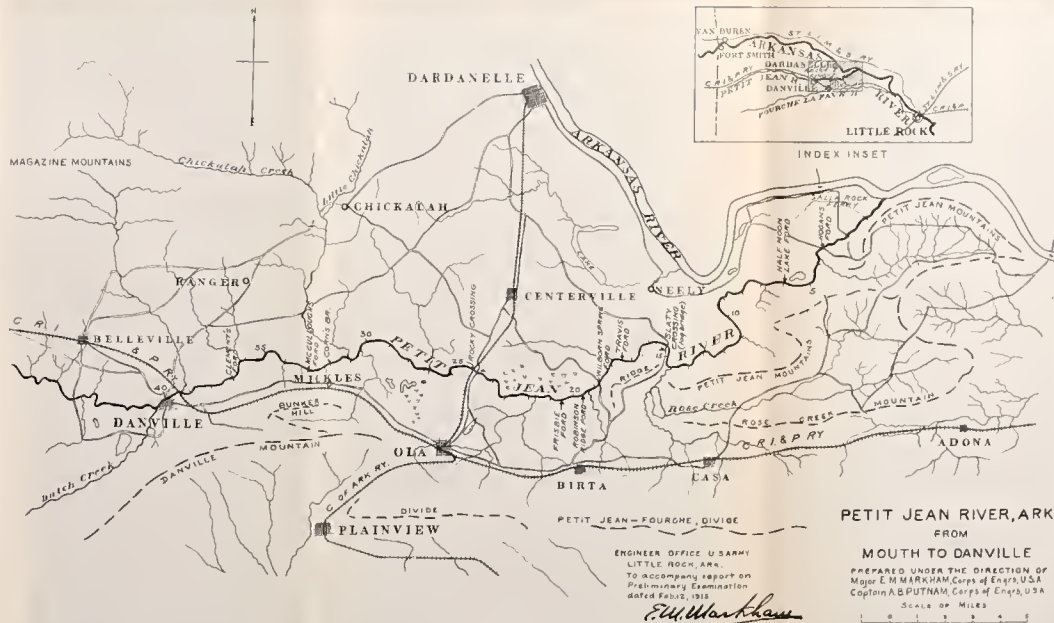
It has been contended that where the Petit Jean flows into the Arkansas River that the condition of the bars at this point is such that boats would not have ingress or egress at this place. Answering this objection, we beg to submit that dredge boats will be at work on the Arkansas River in a few months, said boats now being in the course of completion, and it will only be a question of a limited amount of work at this place in order to make the mouth of the Petit Jean, where it flows into the Arkansas, free from obstructions so boats may go in and out.

FAVORABLE REPORT OF ENGINEERS IN ARKANSAS.

It is our understanding that when a preliminary survey of this river was made by the engineers for the State of Arkansas that its navigability was considered feasible, and a report of this tenor was made to the proper authorities. All things considered, we believe that an appropriation of \$10,000 should be made for this stream, in view of the fact that streams of less dignity, carrying less tonnage and susceptible of carrying less tonnage, have been reported on favorably, and have become great carriers of the commerce of the country.

The BOARD OF ENGINEERS FOR RIVERS AND HARBORS.





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